

IN THE CLAIMS:

Please write the claims to read as follows:

Please cancel the claims 12 and 27 without prejudice.

1 1. (Currently Amended) A method for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the method comprising:
3 receiving a write operation, ~~wherein the write operation identifies~~ identifying a
4 file for the write operation ~~to be performed on~~;
5 determining that a volume storing the file has buffer leakage detection activated;
6 creating a data buffer associated with the write operation; and
7 in response to determining the volume has buffer leakage detection activated,
8 writing a buffer check control structure to a raw data buffer associated with the data
9 buffer, the buffer check control structure including one or more uniquely identifying
10 | numbers referred to as magic numbers and a consistency point number.

1 2. (Previously Presented) The method of claim 1 wherein the step of creating the data
2 buffer further comprises:
3 creating the buffer check control structure and the raw data buffer.

1 3. (Previously Presented) The method of claim 2 wherein the buffer check control struc-
2 ture comprises a pointer to the raw data buffer.

1 4. (Previously Presented) The method of claim 1 wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises:
3 creating the buffer check control structure; and
4 overwriting a portion of the raw data buffer with the buffer check control struc-
5 ture.

1 5. (Previously Presented) The method of claim 1 wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises:
3 creating the buffer check control structure; and
4 associating the buffer check control structure to the raw data buffer in a contigu-
5 ous block of memory.

1 6. (Currently Amended) The method of claim [[4]] 1 wherein ~~the buffer check control~~
2 ~~structure~~ the magic numbers uniquely identify a particular buffer check control structure.
3 ~~comprises:~~
4 ~~—— one or more magic numbers; and~~
5 ~~—— a consistency point number.~~

1 7. (Currently Amended) The method of claim ~~[[6-]]~~ 1 wherein the one or more magic
2 numbers comprises a 64-bit-~~value~~ number.

1 8. (Currently Amended) The method of claim ~~[[6-]]~~ 1 wherein the one or more magic
2 ~~number values~~ numbers comprises two 32-bit ~~values~~ numbers.

1 9. (Currently Amended) The method of claim ~~[[6-]]~~ 1 wherein the consistency point
2 number identifies a current consistency point.

1 10. (Currently Amended) The method of claim ~~[[6-]]~~ 1 wherein the consistency point
2 number comprises a 32-bit number ~~value~~.

1 11. (Currently Amended) A method for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, comprising:

3 selecting a data buffer;

4 determining if the selected data buffer includes a buffer check control structure;

5 determining, in response to the selected data buffer including a buffer check con-
6 trol structure, if a consistency point number within the buffer check control structure is

7 correct;

8 determining if one or more uniquely identifying numbers (hereinafter magic num-
9 bers) are within the data buffer check control structure; and

10 performing, in response to determining that the consistency point number and the
11 one or more magic numbers within the buffer check control structure ~~is~~ are correct, a
12 write operation of a file system buffer.

1 12. (Cancelled)

1 13. (Currently Amended) The method of claim ~~[[42]]~~ 11 wherein the one or more
2 magic ~~values~~ numbers comprise a 64-bit magic number.

1 14. (Currently Amended) The method of claim ~~[[42]]~~ 11 wherein the one or more magic
2 ~~values~~ numbers further comprises two 32-bit magic numbers.

1 15. (Previously Presented) The method of claim 11 wherein the step of determining if the
2 consistency point number is correct further comprises:

3 determining if the consistency point number within the buffer check control struc-
4 ture equals a consistency point number identifying a current consistency point.

1 16. (Previously Presented) The method of claim 11 wherein the step of performing a
2 write operation further comprises:

3 writing a set of raw data within the data buffer to a disk.

1 17. (Original) The method of claim 16 wherein the raw data comprises the buffer check
2 control structure.

1 18. (Previously Presented) The method of claim 16 wherein the step of performing the
2 write operation further comprises:

3 removing the buffer check control structure from the raw data before writing the
4 file system buffer to disk.

1 19. (Previously Presented) The method of claim 16 wherein the step of performing the
2 write operation comprises:

3 writing only the raw data within the file system buffer to disk.

1 20. (Currently Amended) A system for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the system comprising:

3 means for receiving a write operation, wherein the write operation identifies a file
4 for the write operation to be performed on;

5 determining that a volume storing the file has buffer leakage detection activated;

6 means for creating a data buffer associated with the write operation; and

7 in response to determining the volume has buffer leakage detection activated,

8 means for writing a buffer check control structure to a raw data buffer associated with the

9 data buffer, the buffer check control structure including one or more uniquely identifying

10 numbers referred to as magic numbers and a consistency point number.

1 21. (Currently Amended) A computer readable media, comprising:
2 the computer readable media containing instructions for execution on a processor
3 for the practice of a method of detecting leaked buffer writes between a first consistency
4 point and a second consistency point, the method having the steps of,
5 receiving a write operation directed to a file, wherein the write operation identi-
6 fies a file for the write operation to be performed on;
7 determining that a volume storing the file has buffer leakage detection activated;
8 creating a data buffer associated with the write operation; and
9 in response to determining the volume has buffer leakage detection activated,
10 writing a buffer check control structure to a raw data buffer associated with the data
11 buffer, the buffer check control structure including one or more uniquely identifying
12 numbers referred to as magic numbers and a consistency point number.

1 22. (Currently Amended) An apparatus configured to detect leaked buffer writes be-
2 tween a first consistency point and a second consistency point, the apparatus comprising:
3 a storage system to receive a write operation, wherein the write operation identi-
4 fies a file for the write operation to be performed on;
5 a storage operating system to determine that a volume storing the file has buffer
6 leakage detection activated;
7 a data buffer created to associate with the write operation; and

8 a buffer check control structure to write to a raw data buffer associated with the
9 data buffer, in response to the storage operating system determining the volume has
10 buffer leakage detection activated, the buffer check control structure including one or
11 more uniquely identifying numbers referred to as magic numbers and a consistency point
12 number wherein the magic numbers and the consistency point number detect if the write
13 operation leaked between a first consistency point and a second consistency point.

1 23. (Previously Presented) The apparatus of claim 22 wherein the data buffer created to
2 associate with the write operations comprises the buffer check control structure and the
3 raw data buffer.

1 24. (Previously Presented) The apparatus of claim 23 wherein the buffer check control
2 structure comprises a pointer to the raw data buffer.

1 25. (Previously Presented) The apparatus of claim 22 wherein the buffer check control
2 structure to write to a raw data buffer associated with the data buffer further comprises
3 the buffer check control structure to overwrite a portion of the raw data buffer.

1 26. (Previously Presented) The apparatus of claim 22 wherein the buffer check control
2 structure to write to the raw data buffer further comprises the buffer check control struc-
3 ture to associate with the raw data buffer in a contiguous block of memory.

1 27. (Cancelled)

1 28. (Currently Amended) The apparatus of claim [[27]] 22 wherein the one or more
2 magic ~~number values~~ numbers comprises a 64-bit ~~value~~ number.

1 29. (Currently Amended) The apparatus of claim [[27]] 22 wherein the one or more
2 magic ~~number values~~ numbers comprises two 32-bit ~~values~~ numbers.

1 30. (Currently Amended) The apparatus of claim [[27]] 22 wherein the consistency
2 point number is configured to identify a current consistency point.

1 31. (Currently Amended) The system of claim [[27]] 22 wherein the consistency point
2 number comprises a 32-bit ~~value~~ number.

1 32. (Previously Presented) A method for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the method comprising:
3 receiving a write operation, wherein the write operation identifies a data container
4 for the write operation to be performed on;
5 determining that a volume storing the data container has buffer leakage detection
6 activated;
7 creating a data buffer associated with the write operation; and

8 in response to determining the volume has buffer leakage detection activated,
9 writing a buffer check control structure to a raw data buffer associated with the data
10 buffer, wherein the buffer check control structure has one or more values to uniquely
11 identify the buffer check structure and a value identifying the first consistency point.

1 33. (Previously Presented) The method of claim 32, wherein the data container is a virtual
2 disk or a file.

1 34. (Previously Presented) The method of claim 32, wherein the first consistency point is
2 the current consistency point.

3

4 35. (Previously Presented) The method of claim 32, wherein the step of creating the data
5 buffer further comprises:

6 creating the buffer check control structure and the raw data buffer.

1 36. (Previously Presented) The method of claim 32, wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises:

3 creating the buffer check control structure; and

4 overwriting a portion of the raw data buffer with the buffer check control struc-
5 ture.

- 1 37. (Previously Presented) The method of claim 32, wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises:
3 creating the buffer check control structure; and
4 associating the buffer check control structure to the raw data buffer in a contigu-
5 ous block of memory.

Please add the following new claims:

1 38. (New) A method for detecting leaked buffer writes between a first consistency point
2 and a second consistency point, the method comprising:
3 receiving a write operation, the write operation identifying a file for the write op-
4 eration;
5 creating a data buffer associated with the write operation; and
6 writing a buffer check control structure to a raw data buffer associated with the
7 data buffer, the buffer check control structure including one or more uniquely identifying
8 numbers referred to as magic numbers and a consistency point number, wherein the one
9 or more magic numbers and the consistency point number uniquely identify the write op-
10 eration in order to detect leakage between a first consistency point and a second consis-
11 tency point.

1 39. (New) The method of claim 38 further comprising:
2 creating the buffer check control structure and the raw data buffer.

1 40. (New) The method of claim 39 further comprising:
2 writing a pointer to the raw data buffer into the buffer check control structure.

1 41. (New) The method of claim 38 further comprising:

2 creating the buffer check control structure; and
3 overwriting a portion of the raw data buffer with the buffer check control struc-
4 ture.

1 42. (New) The method of claim 38 further comprising:
2 creating the buffer check control structure; and
3 associating the buffer check control structure to the raw data buffer in a contigu-
4 ous block of memory.

1 43. (New) The method of claim 38 further comprising:
2 uniquely identifying a particular buffer check control structure by the magic num-
3 bers.

1 44. (New) The method of claim 38 further comprising:
2 using a 64-bit number as the one or more magic numbers.

1 45. (New) The method of claim 38 further comprising:
2 using two 32-bit numbers as the one or more magic numbers.

1 46. (New) The method of claim 38 further comprising:
2 identifying a current consistency point by the consistency point number.

1 47. (New) The method of claim 38 further comprising:

2 using a 32-bit number as the consistency point number.

1 48. (New) A computer readable media, comprising:

2 said computer readable media containing instructions for execution on a processor
3 for a method of detecting leaked buffer writes between a first consistency point and a sec-
4 ond consistency point, the method having,

5 receiving a write operation, the write operation identifying a file for the write op-
6 eration;

7 creating a data buffer associated with the write operation; and

8 writing a buffer check control structure to a raw data buffer associated with the
9 data buffer, the buffer check control structure including one or more uniquely identifying
10 numbers referred to as magic numbers and a consistency point number, wherein the one
11 or more magic numbers and the consistency point number uniquely identify the write op-
12 eration in order to detect leakage between a first consistency point and a second consis-
13 tency point.